DEPARTMENT OF THE ARMY
Missouri River Division, Corps of Engineers
P.O. Box 103, Downtown Station
CEMRD-ED OMAHA, Nebraska 68101-0103

MRD-R 1110-1-10

Regulation
No. 1110-1-10

1 September 1989

Engineering and Design
DESIGN AND CONSTRUCTION OF FIRE PROTECTION AND DETECTION SYSTEMS

1. Purpose. This regulation establishes policy and guidance for design and construction of fixed and passive fire protection systems, interior and exterior, and detection systems for smoke, excess heat, or fire. It applies to both civil and military construction.

2. Applicability. This regulation applies to the Missouri River Division and its Districts.

3. References.

a. Mil HDBK 1008A, Fire Protection for Facilities Engineering, Design and Construction

b. TM 5-813-4, Water Supply/Water Storage

c. TM 5-813-5, Water Supply/Water Distribution Systems

d. ETL 1110-3-389, Guidelines for Design and Construction - Fire Protection and Detection Systems

e. MRDED Regulation No. 1110-1-1, Engineering and Design - Reporting Deviations from OCE Criteria

f. MRDED Regulation No. 1110-234-1, Engineering and DesignMilitary Construction: Design Review Procedures

g. National Fire Codes

4. Policy.

a. Every effort will be made to ensure that plans and specifications prepared under the supervision of the Corps of Engineers are properly coordinated between a Fire Protection Engineer and the various engineering disciplines. The Fire Protection Engineer
will review and approve in-house and architect-engineer work. During construction, the Fire Protection Engineer(s) will coordinate the review and approval of shop drawings and fire protection system test plans. The Fire Protection Engineer will be involved during testing to assure the system meets design requirements when completed.

b. The fire protection of a facility will involve other disciplines besides the Fire Protection Engineer. Architectural, environmental, electrical, mechanical and structural could all be involved in aspects of fire protection. Each discipline will require a person knowledgeable in the aspects of fire protection relating to their field.

c. The Fire Protection Engineer will document that the fire protection system has been reviewed and approved before projects are advertised.

d. Notification shall immediately be made in writing, by separate letter through project/program management channels to both base and command levels, upon discovery of any unresolvable deficiencies that need programming action to achieve a complete system that meets all of the stated requirements.

5. Procedures.

a. Fire Protection Engineer(s) shall be designated and delegated with authority commensurate with assigned responsibilities. The District Fire Protection Engineer(s) shall perform the duties as described in paragraph 4 of reference 3d. The Fire Protection Engineer shall also review project development booklets, 1391s, and other predesign criteria established by the Using Service to ensure that fire protection and detection criteria has been adequately addressed and included in project costs. Where amendments are necessary prior to bid opening, they will be performed by the original designer and reviewed and approved by the Fire Protection Engineer. Any modification required during construction will be prepared or reviewed and approved by the Fire Protection Engineer. It is the intent of this regulation that Value Engineering proposals that affect fire protection and detection design systems shall also be approved by the Fire Protection Engineer prior to their implementation.

b. Complete designs of fire protection and detection systems, as required by paragraph 4e of reference 3d, shall be accomplished in accordance with MRD-R 1110-234-1, Mil HDBK 1008A, TM 5-813-4, and TM 5-813-5.

c. The fire protection systems water supply report shall either include completed MRO Form 1838, Fire Hydrant Flow Test Report, or a similar form in the predesign criteria.

d. Deficiencies in the water supply or other utility systems shall be identified early in the project development booklet, 1391s, or other criteria preparation activities. System deficiencies, not within the scope of the individual facility, shall be recommended for separate funding approval, study, and upgrade concurrent with the proposed project. Project books, 1391s, and design analysis shall note deficiencies and identify concurrent projects that will correct them.

e. A velocity and surge analysis is required for central fire pump house systems.

f. Deviations from project criteria shall be obtained in accordance with the procedures set forth in paragraph 1.3 of reference 3a and reference 3e.

g. Funds limitations shall not be used as justification for deviation below established standards in accordance with paragraphs 4d, Policy, and 1.3 of reference 3a.

h. Fire Protection Engineer(s) assisted by other engineering/architect disciplines, as required, shall be made available to perform inspections and investigations on completed civil works or military projects at the request of the using service. Complete reports, containing all pertinent information and recommendations, shall be prepared and a copy furnished to CEMRD-ED.

i. The duties of a Fire Protection Engineer, as described in references 3a and d, require a highly qualified person(s) with significant technical expertise and training. The major duties and responsibilities of the Fire Protection Engineer position shall be evaluated to determine if these job elements can be accomplished by a technical specialist working within the present design organizational framework or by development of a separate Fire Protection Branch within Engineering Division.

j. The District will develop a policy for providing guidance on the design, review, construction, and testing/inspection of fire protection and detection systems as indicated in reference 3d. The policy will contain a list of names of the Fire Protection Engineer(s) and principal architect and engineering disciplines responsible for incorporating new criteria and lessons learned into their respective guide specifications, design documents and standard details. This policy and list of names will be updated annually on the anniversary of this regulation and a copy furnished to CEMRD-ED no later than 1 October.

/s/
ROBERT H. RYAN
Brigadier General, USA
Commanding

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